WE CLAIM:

1. A micro-electromechanical fluid ejection device that comprises

a substrate;

a nozzle chamber wall and a roof wall that are positioned on the substrate to define a nozzle chamber and an ink ejection port in the roof wall, a fluid being receivable in the nozzle chamber;

an elongate actuator arm having a fixed end portion that is fast with the substrate and a free end portion that is spaced from the substrate, the elongate actuator arm incorporating a heating circuit that is connectable to a power supply to heat the actuator arm, at least a portion of the actuator arm being of a material having a coefficient of thermal expansion which is such that the material is capable of thermal expansion to do work, the heating circuit being positioned to generate differential thermal expansion and contraction when heated and subsequently cooled to cause reciprocal displacement of the free end portion of the actuator arm;

a fluid ejection member that is fast with the free end of the elongate actuator arm to be positioned in the nozzle chamber such that said displacement of the free end portion of the actuator arm results in the ejection of fluid from the ink ejection port; and

control logic circuitry positioned on the substrate along an elongate region defined on the substrate and interposed between the actuator arm and the substrate, the control logic circuitry being connected to the heating circuit to enable and disable the power supply according to a control signal received by the control logic circuitry.

2. A micro-electromechanical fluid ejection device as claimed in claim 1, in which the elongate actuator arm is a laminated structure having a first metal layer and a dielectric layer, the first metal layer being interposed between the dielectric layer and the substrate and defining the heating circuit.

3. A micro-electromechanical fluid ejection device as claimed in claim 2, in which the actuator arm has a second metal layer that is positioned so that the dielectric layer is interposed between the metal layers, said second metal layer being substantially the same as the first metal layer.

4. A micro-electromechanical fluid ejection device as claimed in claim 2, in which the metal layers and the dielectric layer project from the free end of the actuator arm to define the fluid ejection member and a discontinuity is defined in the first metal layer between the heating circuit and the fluid ejection member.

5. A micro-electromechanical fluid ejection device as claimed in claim 2, in which the control logic circuitry defines transfer register circuitry to receive control signals and drive transistor circuitry connected to the transfer register circuitry, the drive transistor circuitry being interposed between the heating circuit and the substrate and being defined by a plurality of traces that are positioned to extend transversely with respect to a longitudinal axis of the actuator arm.

6. A printhead which comprises a plurality of micro-electromechanical fluid ejection devices as claimed in claim 1